Computers, Environment AND Urban Systems

AN INTERNATIONAL JOURNAL

LIST OF CONTENTS
AND
AUTHOR INDEX
VOLUME 16, 1992

PERGAMON PRESS
New York • Oxford • Seoul • Tokyo

Computers, Environment and Urban Systems

An International Journal

EDITOR

David C. Prosperi
Department of Urban and Regional Planning
Florida Atlantic University
Fort Lauderdale, FL 33301

ASSOCIATE EDITORS

Kate Beard
Department of Surveying Engineering
University of Maine
Orono, ME 04469

Richard E. Klosterman
Department of Geography and Planning
University of Akron
Akron, OH 44325

Richard Langendorf
School of Architecture
University of Miami
Coral Gables, FL 33124

Ian Masser
Department of Town and Regional Planning
University of Sheffield
Sheffield, UK F10 2TN

Vincent B. Robinson
Institute for Land Information Management
University of Toronto
Erindale College
Mississauga, Ontario
Canada L5L 1C6

Grant I. Thrall
Department of Geography
University of Florida
Gainsville, FL 32611

Marcia Lynn Whicker
Department of Public Administration
Graduate School
Rutgers University
701 Hill Hall
Newark, NJ 07102

Anthony Yeh
Centre of Urban Planning and Environmental Management
University of Hong Kong
Pokfulam Road
Hong Kong

EDITORIAL ADVISORY BOARD

Robert T. Aangeenbrug
University of South Florida

David Arbelt
Department of Planning and Growth Management
City of Austin

Larry E. Band
University of Toronto

Michael Batty
State University of New York at Buffalo

Earl J. Bell
University of Washington

Richard K. Brail
Rutgers University

Peter Burrough
University of Utrecht

Barbara P. Buttenfield
State Unversity of New York at Buffalo

Mike De Mers
Ohio State University

Steve French
Georgia Institute of Technology

Margot W. Garcia
Virginia Commonwealth University

Kingsley E. Haynes
George Mason University
Fairfax, VA

Lewis D. Hopkins
University of Illinois

David Maidment
Stanford University

Allen P. Marks
The American University
Washington, DC

Theodore K. Miller
Indiana University

Hideo Nakamura
University of Tokyo

Maury Seldin
Homer Hoyt Advanced Studies Institute
North Palm Beach, FL

John M. Stevens
The Pennsylvania State University

Barry D. Solomon
U.S. Environmental Protection Agency

Michael Wegener
University of Dortmund

Barry Wellar
University of Ottawa

Lyna L. Wiggins
Massachusetts Institute of Technology

Editorial Office: David C. Prosperi, Department of Urban and Regional Planning, Florida Atlantic University, University Tower, 220 S.E., 2nd Ave., Fort Lauderdale, FL 33301, USA.

Publishing, Subscription, and Advertising Offices: Pergamon Press Inc., 660 White Plains Road, Tarrytown, NY 10591-5153, USA, INTERNET "PPI@PERGAMON.COM" and Pergamon Press Ltd., Headington Hill Hall, Oxford OX3 0BW, England.

Published Bimonthly. *Annual Institutional Subscription Rate* (1993): £289.00 (US$549.00) *Personal Subscription Rate* for those whose library subscribes at the regular rate (1993): £71.00 (US$135.00). Sterling prices are definitive. US dollar prices are quoted for convenience only and are subject to exchange rate fluctuation. Prices include postage and insurance and are subject to change without notice.

LIST OF CONTENTS

Volume 16, Number 1 1992

CONTENTS

David C. Prosperi	1	Editorial
		ARTICLES
Yuemin Ding **A. Stewart Fotheringham**	3	The integration of spatial analysis and GIS
Arif N. Merchant	21	Expert system: A design methodology
Elsa M. João **Stephen J. Walsh**	43	GIS implications for hydrologic modeling: Simulation of nonpoint pollution generated as a consequence of watershed development scenarios
William D. Schecher **Drew C. McAvoy**	65	MINEQL+: A software environment for chemical equilibrium modeling
T. J. Cartwright	77	STRAD: A new role for computers in planning
	I	***Software Survey Section***

Volume 16, Number 2 1992

CONTENTS

		ARTICLES
Paul J. Ossenbruggen **Paul C. Ossenbruggen**	83	SWAP: A computer package for solid waste management
Daniel Z. Sui	101	A fuzzy GIS modeling approach for urban land evaluation
Robert T. Plant **Juan P. Salinas**	117	CISEPO (City Selection Program): A DSS for relocating companies within the U.S.

Edgar W. Butler
Hiroshi Fukurai 131 Computer-aided evaluation of racial representation in jury selection

INNOVATIONS IN COMPUTER LABS

Mirna L. Cortopassi Lobo 157 The GEO project: A strategy for the implementation of a geographic information system in high education

I *Software Survey Section*

Volume 16, Number 3 1992

CONTENTS

Robert D. Rugg
Milan Konečný
Joel L. Morrison 165 Introduction

SYSTEMS AND THEORY

Michael Blakemore 167 UK education and research in GIS: A selective review of the provision, integration and analysis of geographic information

Systems

François Bouillé 179 Decisive criteria for GIS comparative study and evaluation

George G. van der Meulen 187 Geographical information and decision support system

Sten Folving
Michael Hoey
David Whelan 195 Development of a low-cost pc-based image-processing and mapping GIS within the frames of the EEC joint research center's collaborative program

Heinz Peter Schrey 203 Criteria of GIS applications in soil science

Erik Stubkjaer 209 The development of national, multi-purpose spatial information systems — Danish experiences in a theoretical context

Theory

Robert D. Rugg 219 A feature-based planning support system

Nicholas W. J. Hazelton
Lisa Marie Bennett
Joanna Masel 227 Topological structures for 4-dimensional geographic information systems

Peter van Oosterum	239	A storage structure for a multi-scale database: The reactive-tree
J. C. Müller	249	Towards an integrated cartographic research model: Suggestions and priorities
David Rhind	261	The next generation of geographical information systems and the context in which they will operate
	I	***Software Survey Section***

Volume 16, Number 4 1992

CONTENTS

Robert D. Rugg **Milan Konečný** **Joel L. Morrison**	269	Introduction
		Spatial Databases
Wolfgang Kainz	271	Multi-scale databases
M. Mainguenaud **X. T. Simatic**	281	A data model to deal with multi-scaled networks
Ferenc Csillag **Ágnes Kummert** **Miklós Kertész**	289	Resolution, accuracy and attributes: Approaches for environmental geographical information systems
Robert Laurini **Françoise Milleret-Raffort**	299	A conceptual framework for multiple representations of spatial objects with the entity-relationship approach
Joel L. Morrison	313	Modernization and multi-scale databases at the U.S. geological survey
		Applications
Zhao Wei **He Jianbang** **Chi Tianhe**	321	Application of expert systems in land resources research
Jaromír Kolejka	329	Local GIS application in planning of ecological landscape stability systems

Joerg Schaller	337	GIS application in environmental planning and assessment
Bernd M. Powitz	355	Reflections on practical computer-assisted generalization
Yang Wenjiu **Liu Xinji**	367	Integration of multi-geoscience data for mineral resources prediction using GIS methodology
Stephen M. Ervin	375	A hypermedia GIS: The Massachusetts Turnpike study
Vladimir M. Borisov **Vladimir S. Tikunov** **Sergej A. Gromov**	385	Geographic information system representing air pollution in an area
	I	***Software Survey Section***

Volume 16, Number 5 September/October, 1992

CONTENTS

Michael N. DeMers	389	Resolution tolerance in an automated forest land evaluation model
Michaël-Charles Le Duc	403	A design methodology for geoinformatic systems
Deborah Fields **T. John Kim**	415	Application of a computer-aided expert decision support system to rural development in Kenya
Elise M. Bright	435	The "ALLOT" model: A PC-based approach to siting and planning
James A. Lynch **Randy H. Gimblett**	453	Perceptual values in the cultural landscape: A computer model for assessing and mapping perceived mystery in rural environments
	I	***Software Survey Section***

Volume 16, Number 6 November/December, 1992

CONTENTS

D. Scott Mackay **Vincent B. Robinson** **Lawrence E. Band**	473	Classification of higher order topographic objects on digital terrain data
Marc P. Armstrong **Paul J. Densham**	497	Domain decomposition for parallel processing of spatial problems
Ian Masser	515	Computer based technologies in local government: Some international perspectives
Margot W. Garcia **Mark Perryman**	517	Survey of the use of computers in planning by local governments of Arizona and New Mexico
Heather Campbell	531	The impact of geographic information systems on British local government
Massimo Craglia	543	GIS in Italian urban planning
	I	List of Contents and Author Index Volume 16, 1992
	IX	***Software Survey Section***